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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Greg Bensinger

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BANNER & WITCOFF, LTD.

1100 13th STREET, N.W.

SUITE 1200

WASHINGTON, DC 20005-4051

EXAMINER

TABONE JR, JOHN J

ART UNIT

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2117

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,461	Applicant(s) BENSINGER ET AL.	
	Examiner JOHN J. TABONE JR	Art Unit 2117	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07142004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-7 are currently pending in the application and have been examined.

Priority

2. Applicants have claimed priority to PCT/EP02/00503 file 01/18/2002. However, this date can not be applied to the current application due to the effective filing date of 10/15/2005 exceeding the maximum time period for filing a US Application from the PCT filing date.

Information Disclosure Statement

3. The information disclosure statement filed 07/14/2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because all Foreign and NPL documents are not in the application file. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Drawings

4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of the dark shading in the blocks. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the *emulator, IP-Xpress board and control means* must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: *switching means 1, clock oscillator 2, multiplexer 3*.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The Specification is objected to because is missing section titles, the BRIEF DESCRIPTION OF THE DRAWINGS SECTION, and a statement before the claims such as "What is claimed is:".

6. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

7. On page 3, lines 1-12, there is not reference to Fig. 1. Instead, there are statements such as "with reference to the figure", "[t]he figure shows". Applicants are required to amend the specification to specifically refer to Fig. 1.
8. On page 3, line 11, change "form" to "from".

Claim Objections

9. **Claim 1** is objected to because of the following informalities: Change "characterized by" to "comprising:" and start the switching limitation on the next line with proper indentation. Appropriate correction is required.
10. **Claim 3** is objected to because of the following informalities: This claim is missing proper punctuation. Appropriate correction is required.
11. **Claim 7** is objected to because of the following informalities: add a colon ":" after the word "comprising" and start the "switching means" limitation on the next line with proper indentation. Appropriate correction is required.
12. **Claim 7** is objected to because the use of the word "for" in the phrase "control means for sending" and "for switching the switching means" does not further limit the claim. MPEP 2111.04 states "[l]anguage that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 3:

This claim is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: between the IP core and the “design mapped onto an emulator”. It is not understood how the clocking of the IP core and the testing of the design are related. All the claim is doing is switching from one clock source to another, but no clocking of the IP core is performed.

This claim is rendered indefinite because the claim appears to be all preamble. The claim recites “A method of clocking an IP core, characterized by switching....”, however, “characterized by switching” does not positively recite the act of performing the switching.

Claim 3:

This claim recites the limitation "the emulators clock generator circuits" in line 4. There is insufficient antecedent basis for this limitation in the claim.

This claim recites the limitation "the IP-Xpress daughter board" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claims 2-6:

These claims are also rejected because they depend on claim 1 and have the same problems of indefiniteness and being incomplete for omitting essential structural cooperative relationships of elements.

Claim 7:

This claim is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: There is no relationship between the clocking of the IP core and the elements in the body of the claim. All the claim is doing is switching from one clock source to another, but no clocking of the IP core is performed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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14. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by **Kirsch et al.** (US-6473727), hereinafter Kirsch.

Note: For purpose of examination independent claim 7 will be interpreted as merely switching between on clock to another clock during debug or testing of a design. This is primarily due to the number of ambiguities in the claims as per the Objections and 35 USC § 112, second paragraph rejections, to the claims. Also, because of the use of alternate language “or” the limitation “any free running clock” will be used.

Claim 7:

Kirsch teaches switching means (**Fig. 1, Clock Controller 48**); any free-running clock source (**Scan Clock 52**); and control means (Fig. 1, Scan Controller 40) for sending a control signal to the switching means when the debugging operation is started, for switching the switching means to any free-running clock source. (Fig. 1, col. 3, ll. 1-19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (**AAPA**), in view of **Kirsch et al.** (US-6473727), hereinafter Kirsch.

Note: For purpose of examination independent claim 1 will be interpreted as merely switching between on clock to another clock during debug or testing of a design. This is primarily due to the number of ambiguities in the claims as per the Objections and 35 USC § 112, second paragraph rejections, to the claims. Also, because of the use of alternate language “or” the limitation “any free running clock” will be used.

Claim 1:

AAPA teaches the claimed IP core, testing a design mapped onto an emulator. (p. 1, l. 12 to p. 2, l. 9).

AAPA does not explicitly teach “switching from a clock used for testing a design mapped onto an emulator to any free-running clock source during a debugging operation”. **Kirsch** teaches in an analogous art a microprocessor 4 with support for in-circuit emulation comprising a scan controller unit 40 and a breakpoint detect unit 42. In use, at some point during program flow, the breakpoint detect unit 42 detects a condition at which the user wishes to interrogate/update the microprocessor's state. The breakpoint detect unit 42 raises a " Breakpoint Interrupt" on line 44 to interrupt program flow and force execution from the " Breakpoint Interrupt Service Vector". The instructions at the " Breakpoint Interrupt Service Vector" might simply be "No-Operations" to clear the microprocessor's pipeline. When the microprocessor starts executing the "No-Operation" instructions, it raises an Enter Bkpt Flag at 46 (during debugging) to signal to the scan controller 40 that the microprocessor 4 should be halted in preparation for a debug operation. The scan controller 40 in turn signals a clock controller 48 via Enter Scan control line 50 to cleanly switch the clock source from

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a free-running Master clock to an off-chip controllable Scan Clock 52 (switching from a clock used for testing a design mapped onto an emulator to any free-running clock source during a debugging operation). (Fig. 1, col. 3, ll. 1-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **AAPA** to use **Kirsch's** ability to switch from on clock to another during debug operation. The artisan would be motivated to do so because it would enable **AAPA** to make memory access through debug practicable by minimizing the number of operations needed for each access. This in turn makes the method a viable solution for in-circuit software debug. (**Kirsch**, col. 5, ll. 5-14).

Claim 2:

AAPA teaches said switching is to said clock oscillator, which is provided on an IP-Xpress board. (p. 1, l. 12 to p. 2, l. 9).

Claim 3:

AAPA in view of **Kirsch** teaches the clock used for testing the design is either: any free running clock source. (**AAPA**, p. 1, l. 12 to p. 2, l. 9; **Kirsch**, Fig. 1, col. 3, ll. 1-19).

Claim 4:

AAPA in view of **Kirsch** teaches the step of monitoring signals specific to the IP core which indicate a breakpoint in order to detect the breakpoint (**the breakpoint detect unit 42 detects a condition at which the user wishes to interrogate/update the microprocessor's state**). (**AAPA**, p. 1, l. 12 to p. 2, l. 9; **Kirsch**, Fig. 1, col. 3, ll. 1-19).

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Claim 5:

AAPA in view of **Kirsch** teaches said switching is performed upon detecting that the breakpoint has been entered (**the breakpoint detect unit 42 detects a condition at which the user wishes to interrogate/update the microprocessor's state**).

(**AAPA**, p. 1, l. 12 to p. 2, l. 9; **Kirsch**, Fig. 1, col. 3, ll. 1-19).

Claim 6:

AAPA teaches the IP core is a microprocessor or a DSP. (**AAPA**, p. 1, l. 12 to p. 2, l. 9).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN J. TABONE JR whose telephone number is (571)272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JACQUES H. LOUIS JACQUES can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John J. Tabone, Jr./
Examiner
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